

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT O. CANADA
and WALTER D. RAWLE

Appeal No. 2001-1062
Application No. 08/910,297

ON BRIEF

Before HAIRSTON, BARRETT, and RUGGIERO, Administrative Patent Judges.
HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 15.

The disclosed invention relates to a polarization diversity receiver that uses phase compensation to adjust the phase of a first polarized signal before combining the first polarized signal with a second polarized signal.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A receiver for use with a first antenna which receives first polarized signals and a second antenna which receives second polarized signals, the first polarized signals having a substantially different polarization than the second polarized signals, said first polarized signals and said second polarized signals being depolarized components of an original transmitted signal, the receiver comprising:

a phase detector connected to the first antenna to receive the first polarized signal and to the second antenna to receive the second polarized signal;

a phase shifter for adjusting the phase of the first polarized signal to produce a phase compensated first signal; and

a combiner circuit connected to the second antenna to receive the second polarized signal and to the phase shifter to receive the phase compensated first signal, the combiner circuit constructively summing the second polarized signal and the phase compensated first signal to generate a combined polarization received signal.

The references relied on by the examiner are:

Lo et al. (Lo)	4,313,220	Jan. 26, 1982
Bottomley et al. (Bottomley)	5,392,054	Feb. 21, 1995
Iwasaki	5,513,222	Apr. 30, 1996
Hwang	5,923,714	Jul. 13, 1999
		(filed Mar. 27, 1997)

Claims 1 through 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lo in view of Iwasaki and appellants' admitted prior art.

Claims 6 through 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lo in view of Iwasaki, appellants' admitted prior art and Hwang.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Lo in view of Iwasaki, appellants' admitted prior art and Bottomley.

Claims 10, 14 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lo in view of Hwang.

Claims 11 through 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lo in view of Hwang and appellants' admitted prior art.

Reference is made to the brief (paper number 13) and the answer (paper number 14) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 15.

With the exception of the examiner's finding (answer, page 5) that Lo teaches "constructively summing" first and second polarized signals, we agree with the remainder of the examiner's factual findings (answer, pages 4 through 6) concerning the teachings of Lo. We likewise agree with the examiner's finding (answer, page 6) that the phase detector 31 disclosed by Lo is connected to only one of the antennas as opposed to two antennas as set forth in the claims on appeal, and that the first and second polarized signals disclosed by Lo are not "depolarized components of an original transmitted signal." "[T]he examiner contends that the use of phase detectors connected to two antennas is well known in the art, as taught by Iwasaki and the examiner contends that the concept of obtaining depolarized components of an original transmitted signal is well known in the art, as admitted by applicant[s]" (answer, page 6). Based upon the fact that Iwasaki is in the same field of endeavor as the disclosed and claimed invention, and the fact that

Iwasaki discloses a combining circuit for a diversity receiving system, the examiner concluded (answer, page 6) that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lo et al. by providing for the detection of the two antenna signals by a phase detector, as taught by Iwasaki for the purpose of obtaining an optimal ratio between the two signals, as disclosed at column 2, lines 43-47.” In view of the admitted prior art teachings (specification, page 1, lines 21 through 28 and page 2, lines 7 through 17), the examiner stated (answer, page 7) that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lo et al. and Iwasaki by specifically providing for the depolarized signals as a result of multipath conditions, as admitted by applicant[s], for the purpose of providing a system that is able to compensate for multipath conditions, such as rain.”

Inasmuch as appellants have not challenged the examiner’s finding that it would have been obvious to the skilled artisan to combine the teachings of the admitted prior art with those of Lo and Iwasaki, we will treat appellants’ silence as an affirmation of the examiner’s findings.

With respect to the examiner’s findings concerning the combined teachings of Lo and Iwasaki, appellants argue that the polarized signals in Lo are “*destructively*” summed as opposed to “constructively” summed as claimed (brief, pages 4 through 8), that the examiner has used impermissible hindsight to select isolated bits from the references to reconstruct Appellants’ claimed invention in lieu of a suggestion or motivation for such a combination (brief, pages 3, 6 and 8), and that “[m]erely because references are in the same field of endeavor does not provide the motivation to combine them” (brief, page 9).

We agree with appellants' arguments. The same field of endeavor is merely the jumping-off point in the determination of obviousness of the claimed invention. The examiner must still make a prima facie case that it would have been obvious to the skilled artisan to select and combine the teachings of the references. The establishment of such a case is weakened by the numerous teachings in Lo that the polarized signals are not "constructively" combined but are combined to reduce/cancel portions of the two signals (column 3, lines 15 through 44; column 4, lines 58 through 65; and column 5, lines 26 through 64). The examiner's case is further weakened by the fact that Lo is directed to a polarization diversity receiver whereas Iwasaki is directed to a frequency diversity¹ receiver. The examiner has not come to grips with this major difference between the teachings of Lo and Iwasaki. Besides, the examiner's case is fatally weakened by the absence in the record of a factual basis in the record (e.g., the references of record) for making the suggested modifications to the teachings of Lo. A finding of motivation to combine the teachings of the references is essential in an obviousness determination, and it must be "based on evidence of record," and not the examiner's "subjective belief and unknown authority." In re Lee, 277 F.3d 1338, 1343-1344, 61

¹ But for the frequency diversity teachings of Iwasaki, it appears that the remainder of the teachings of Iwasaki are remarkably similar to the structure and steps set forth in claims 1 and 10, respectively. Figures 1 and 2 of Iwasaki disclose two antennas 10a and 10b with a phase detector 51 connected to receive signal inputs from both of the antennas, a variable phase shifter 52 to adjust the phase of one of the antenna signal inputs, and a combiner/adder 53 to constructively sum the two signal inputs. Such teachings are highlighted for review by both the examiner and appellants.

Appeal No. 2001-1062
Application No. 08/910,297

USPQ2d 1430, 1434 (Fed. Cir. 2002). Lastly, impermissible hindsight can not take the place of the required evidentiary showing.

Based upon the foregoing, the obviousness rejection of claims 1 through 5 is reversed. The obviousness rejection of claims 6 through 15 is reversed because the multiplier teachings of Hwang and the antenna wavelength separation distance teachings of Bottomley do not cure the noted shortcomings in the teachings of Lo and Iwasaki.

DECISION

The decision of the examiner rejecting claims 1 through 15 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
LEE E. BARRETT)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
JOSEPH F. RUGGIERO)	
Administrative Patent Judge)	

KWH/lp

PATENT SPECIALIST
COATS & BENNETT, P.L.L.C.

Appeal No. 2001-1062
Application No. 08/910,297

P.O BOX 5
RALEIGH, NC 27602

Letty

JUDGE HAIRSTON

APPEAL NO. 2001-1062

APPLICATION NO. 08/910,297

APJ HAIRSTON

APJ BARRETT

APJ RUGGIERO

DECISION: **REVERSED**

PREPARED: Aug 12, 2003

OB/HD

PALM

ACTS 2

DISK (FOIA)

REPORT

BOOK